No new matter has been added. Claims 1, 2, 7, 9-11, and 15 remain active in this application.

REMARKS/ARGUMENTS

Present Claims 1, 2, and 7, and 9-11 relate to methods for measuring quantitatively or qualitatively an analyte in a whole blood sample, comprising:

forming a reaction system by mixing the whole blood sample with a whole blood treatment solution comprising detergent, and adding to the mixture of the whole blood sample and the whole blood treatment solution a first substance which is immobilized on a solid carrier and specifically binds to an analyte contained in the whole blood sample and a second substance which specifically binds to the analyte to allow the analyte to react with the first and second substances to form a complex of first substance-analyte-second substance,

separating the complex, and

detecting the complex to measure quantitatively or qualitatively the analyte in the complex,

wherein said reaction system comprises the detergent in a concentration range of 0.5 to 5% so that hemolysis is prevented.

Present Claim 15 relates to reagent kits for measuring an analyte in a whole blood sample, which comprises a first substance which is immobilizd on a solid carrier and specifically binds to the analyte, a second substance which specifically binds to the analyte, and a whole blood treatment solution which comprises detergent,

wherein the whole blood sample is first mixed with the whole blood treatment solution, and then the first and the second substances are added to the mixture of the whole blood sample and the whole blood treatment solution to form a reaction system,

wherein said reaction system comprises the detergent in a concentration range of 0.5 to 5% so that hemolysis is prevented.

The inventor has discovered that the presently claimed methods and reagent kits are particularly useful for measuring quantitatively or qualitatively an analyte in a whole blood sample. The cited reference contains no disclosure or suggestion of the presently claimed methods and reagent kits. Accordingly, this reference cannot affect the patentability of the present claims.

The rejection of Claims 1, 2, 4, 5, 7-11, and 15 under 35 U.S.C. § 102(b) in view of Ullman et al. are respectively traversed. First, in regard to the method claims, Claims 1, 2, 4, 5, and 7-11, Applicant submits that there is no disclosure or suggestion in Ullman et al. of the presently claimed methods.

On page 5 of the Office Action, it is asserted that Ullman et al. discloses that detergents are used to prevent non-specific binding between an analyte in a whole blood sample and a synthetic particle on which an antibody which specifically binds to the analyte is immobilized. However, when a detergent is used for such purpose, the detergent is usually added at the onset of the reaction between an antibody and an analyte immobilized on a particle, or at the time of washing the particle after the reaction is completed.

In sharp contrast, in the presently claimed methods, the whole blood sample is first mixed with a whole blood treatment solution which comprises a detergent, for the purpose of preventing hemolysis, and then a first substance which is immobilized on a solid carrier and specifically binds to an analyte contained in the whole blood sample and a second substance which specifically binds to the analyte are added to the mixture of the whole blood sample and the whole blood treatment solution to allow the analyte to react with the first and second substances.

As described above, the timing of the addition of the detergent to the reaction system is completely different between the presently claimed method and the method disclosed in Ullman et al. Therefore, the presently claimed methods are different from the method disclosed in Ullman et al. Accordingly, this reference cannot anticipate the Claims 1, 2, 7, and 9-11.

Moreover, Ullman et al. does not contain any suggestion that the timing of the addition of a detergent would play any role in preventing hemolysis. For this reason, Ullman et al. does not suggest the order set out in Claims 1, 2, 7, and 9-11. Accordingly, this reference cannot make these claims obvious.

As for the rejection of the kit claim, Claim 15, Applicant notes that Ullman et al. discloses a kit for conducting a capillary electroseparation specific binding assay but does not disclose a kit comprising a detergent to prevent hemolysis in a whole blood sample.

In contrast, presently amended Claim 15 recites that the kit comprises a whole blood treatment solution comprising detergent which is to be first mixed with a whole blood sample and is adjusted so that the detergent concentration in the mixture of the whole blood sample, the whole blood treatment solution, and the first and second substances is 0.5 to 5% to prevent hemolysis. A kit is usually accompanied with the instructions for using the kit. Therefore, one of ordinary skill in the art can measure qualitatively or quantitatively an analyte in a whole blood sample without causing hemolysis by using the kit of the presently amended Claim 15, by first mixing a whole blood treatment solution comprising detergent and a whole blood sample, and then adding the first and second substances to the mixture of the whole blood treatment solution and the whole blood sample so that the detergent concentration is 0.5 to 5% when the whole blood treatment solution, the whole blood sample, and the first and second substances are mixed, according to the instructions for using the kit. Such kit is not disclosed by Ullman et al.

In light of the above, the kit of present Claim 15 is different from the kit disclosed in Ullman et al. Accordingly, this reference does not anticipate this claim.

Accordingly, this rejection is improper and should be withdrawn.

The rejection of Claims 1, 2, 4, 5, 7-11 and 15 under 35 U.S.C. § 112, second paragraph, has been, in part, obviated by appropriate amendment and is, in part, respectfully traversed. First, as for the rejection of Claim 1 as being indefinite on the grounds that it is unclear how the detergent is part of the claimed method, this claim has been amended to recite that a reaction system is formed by mixing the whole blood sample with a whole blood treatment solution comprising detergent, and adding a first substance and a second substance to the mixture of the whole blood sample and the whole blood treatment solution. Applicant submits that, in view of this amendment, the rejection of Claim 1 should be withdrawn.

Second, in regard to the rejection of Claim 2 as being indefinite due to the phrase "type detergents," Applicant submits that the terms "polyoxyethylene sorbitan ester type detergents" and "sulfobetaine type detergents" are not indefinite. In support of this position, Applicant cites the following scientific papers:

1. T. Hasegawa et al., Anal. Sci., vol. 21(8), pp. 913-916 (2005) ("Hasegawa et al.");

2. L. M. Hjelmeland, Proc. Natl. Acad. Sci. USA, vol. 77(11), pp. 6368-6370 (1980) ("Hjelmeland"); and

3. G. N. Devaraj et al., J. Colloid Interface Sci., vol. 251(2), pp. 360-365 (2002) ("Devaraj et al.").

Copies of these papers are being submitted with the Information Disclosure Statement filed herewith. As can be seen, the term "type detergents (surfactants)" is employed in these papers.

Hasegawa et al. uses the term "sulfobetaine type" surfactants in the Abstract (line 3) and page 914 (left column, line 3, "Reagents" section, line 3, and "Column preparation by

two-step dynamic-coating procedure" section, lines 1-2). Also, Hjelmeland uses the term "sulfobetaine type detergents" in the Abstract (lines 3-4) and page 6370 (right column, line 10). In addition, Devaraj et al. uses the term "polyoxyethylene sorbitan ester-type" surfactants in the Abstract (line 25), page 360 (right column, lines 2-3 from the bottom), and page 363 (left column, item 2).

As evidenced by the above-cited papers, the terms sulfobetaine-type detergents" and "polyoxyethylene sorbitan ester-type detergents" are normally used in the biochemical field. Further, the "polyoxyethylene sorbitan ester type detergents" and the "sulfobetaine-type detergents" are exemplified in the specification of the present application (page 15, line 27 to page 16, line 19), and one of ordinary skill in the art could easily recognize what kind of compounds are encompassed by the terms "polyoxyethylene sorbitan ester type detergents" and "sulfobetaine-type detergents".

In light of the above, the terms "polyoxyethylene sorbitan ester type detergents" and "sulfobetaine-type detergents" are seen to be clear to one of ordinary skill in the art, and therefore, claim 2 is not indefinite.

In the Office Action, it is stated that same criticism applies to Claim 15. However, it thought that the reference to Claim 15 is a mistake and that reference to Claim 5 was intended. Accordingly, the cancellation of Claim 5 obviates this part of the rejection.

As for the rejection of Claim 15 as being indefinite on the grounds that it fails to specifically define how the detergent concentration is adjusted, Applicant notes that a kit is usually accompanied with instructions for using the kit and such instructions usually describe the usage of reagents which constitute the kit, such as the dilution rate of the reagents. One of ordinary skill in the art could adjust the concentration of detergents in the mixture of the whole blood sample, whole blood treatment solution, and first and second substances to 0.5 to 5%, by mixing the whole blood treatment solution with a whole blood sample according to

the instructions for using the kit. Therefore, claim 15 is definite even without reciting how the detergent concentration is adjusted in the whole blood treatment solution.

For all of these reasons, the rejection should be withdrawn.

Applicant submits that the present application is now ready for examination on the merits, and early notification of such action is earnestly solicited.

Respectfully submitted,

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